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GLOSSARY OF TERMS USED IN FUR SEAL RESEARCH AND MANAGEMENT

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GLOSSARY OF TERMS USED IN FUR SEAL RESEARCH AND MANAGEMENT

by

Standing Scientific Committee[1]
of the
North Pacific Fur Seal Commission

This glossary has four main objectives: (1) To define terms which in practice have special meanings to those working with the northern fur seal herds; (2) to redefine zoological terms which have been carried over from the fields of human anatomy and veterinary anatomy; (3) to promote consistent international use of words and phrases, especially in documents of the North Pacific Fur Seal Commission; and (4) to assist the typist, illustrator, and translator.

Following certain definitions, examples are given in parentheses. A list of sources of literature is given at the end of the glossary.

GLOSSARY

abortion Expulsion from the uterus of the . . . conceptus before it is viable.

absorption See resorption.

age Age reckoned from 0 at birth. When exact date of birth is unknown, age is estimated from 15 July, the approximate peak of the pupping season. See also year class. A male pup born in summer 1950 became according to arbitrary definition a "yearling" on 1 January 1951, a "bachelor" on 1 January 1952, and a "bull" on 1 January 1957. (Examples of style: 3-year-old; 27 four-year-olds; a seal 3 years old; females 4 years old or older 3- and 4-year-olds.)

age classification of kill Analysis of the kill by ages. (Example: 2 percent 2-year-olds, 56 percent 3-year-olds, 40 percent 4-year-olds, and 2 percent 5-year-olds.)

age group Seals of the same age. See also year class.

annulus A majority discontinuity (ring, ridge, or layer) formed once a year on the teeth, ear bones, claws, vibrissae, or other parts of the body.

atretic follicle Vesicles resulting from the degeneration of Graafian follicles. These structures show microscopically recognizable degenerative changes.

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[1] Canada - Fishery Research Board of Canada.
Japan - Japanese Fishery Agency
U.S.S.R. - All-Union Institute of Marine Fisheries and Oceanography.
Far Eastern Institute of Marine Fisheries and Oceanography.
U.S.A. - Bureau of Commercial Fisheries.

average harem As formerly used on the Pribilof Islands, a statistic obtained by dividing the estimated number of pups born throughout the summer by the number of harem bulls counted in mid-July. Based on an assumed pregnancy rate of 100 percent, it was a means of estimating the average number of females impregnated by one male. It was last computed in 1947 (U. S. Fish and Wildlife Service, 1950, p. 74) at 94.55 females.

bachelor Colloquially, nonbreeding males, 2 to 6 years old, which gather on hauling grounds adjacent to the breeding areas.

barren Used to describe a sexually mature female which has failed to become pregnant. See also sterile.

behavior For classification of behavior patterns and social relationships, see Bartholomew (1953), Scott (1956), and Thorpe and Zangwill (1961).

birthcoat Pelage of the newborn pup; a transitional pelage consisting of underhairs and overhairs (guard hairs), fully grown at time of birth.

blastocyst (blastula) Early unimplanted stage of the embryo when the cells are arranged in a single layer to form a hollow sphere, barely visible to the naked eye.

blubber Removal from a skin of adhering fat, muscle, and connective tissue by pushing it off with a drawknife-shaped blubbering knife while the skin is hung over a rounded beam.

bull A male older than 6 years. A somewhat arbitrary distinction first made in 1916. See bachelor.

bull, harem A bull guarding one or more females on the breeding ground.

bull, idle A bull (apparently 7 years or more) not tending females.

bull count As used on the Pribilof Islands, an annual count of adult males attended by females (harem bulls), and not attended by females (idle bulls). The count begins on or near 10 July and is completed 7 to 10 days later. Regular counts were started in 1905. More frequent counts are made on the Commander Islands and Robben Island.

checkmark A notch, slit, hole, or other mark made on a seal flipper when a tag is applied, to insure later recognition of an animal which has lost its tag.

condition factor A ratio, indicative of health or growth rate, used in comparing the body condition of one group of seals with another. An example of condition factor is: $\frac{\text{weight}}{(\text{length})^3} \times$ some power of 10 required to bring the product to a satisfactory magnitude (Committee on Wildlife Terminology, 1957).

cornu See horn, under genital tract, female.

corpus albicans A degenerating (regressing) corpus luteum. It takes its name from, and is characterized by, white connective tissue which replaces resorbed luteal tissue.

conceptus The whole product of conception through the entire period of gestation.

corpus luteum The endocrine gland developed in a ruptured Graafian follicle after maturation and discharge of an ovum. A corpus luteum normally develops from each ruptured follicle but, if fertilization and subsequent implantation do not occur, or the early conceptus dies in situ, the corpus luteum degenerates quickly. In the absence of implantation, the body is termed a corpus luteum of ovulation. If accompanying a developing embryo or fetus, the body is termed a corpus luteum of pregnancy.

cow A colloquial term which has been used to describe a female seal, usually more than a year old. Thus, a pup born in summer 1950 became a "yearling" on 1 January 1951 and a "2-year-old cow" on 1 January 1952. Use preferably "female."

cure Preservation of a raw skin by soaking it in a saturated brine solution about 24 hours.

cryptorchid A male with small, infantile testes which remain within the inguinal canal; colloquially, a "big cow." The condition is known as cryptorchidism or cryptorchism. The female counterpart is an individual said simply to have infantile ovaries.

dead-pup study area A prescribed and posted area on a rookery upon which dead pups are counted at the same season year after year; a sampling area. First posted on the Pribilof Islands in 1956.

dehairing Removal of short guard hairs hidden in the fur by shearing with a machine which also parts the hair so that the shears remove only the stiff, upright guard hairs.

embryo Early stage in the development of a conceptus. A period of slow growth and morphological differentiation; the limits of this stage are not well defined in the fur seal.

escapement Seals of a year class that are not killed because they are not the proper size or are not available.

estrus "A recurrent, restricted period of sexual receptivity in female mammals, marked by intense sexual urge" (Dorland, 1951).

fertility "Fecundity or the ability to reproduce; expressed in performance and therefore measurable" (Montagu, 1957, p. 24). See also pregnancy rate.

fetus Late stage in prenatal development. A period of relatively fast growth following morphological differentation and culminating in birth; not clearly defined in the fur seal.

fluctuation Relatively asymmetrical departures from equilibrium (Committee on Wildlife Terminology, 1957). (Example: Changes in the population of year classes.)

follicle, blood A blood-filled cavity caused by rupture of vessels in the theca of a Graafian follicle and resulting in atresia.

follicle, cystic Fluid-filled cysts or cavities, or a connective-tissue structure, resulting from degeneration of a Graafian follicle. An ovary may contain one to many cysts.

follicle, Graafian A mature ovarian follicle containing an ovum and characterized by a fluid-filled antrum.

frontal plane (frontal section) "A frontal plane runs at right angles to the median and transverse planes and, thus, extends parallel to the long axis of the animal from side to side" (Miller, 1952, p. 2). See also horizontal plane.

fur See hair.

generation Used in Soviet fishery literature to mean the same as age group.

genital tract, female The external genitalia (collectively the vulva) include: a blackish, hairless region surrounding the vestibule and corresponding to labia, the clitoris on the ventral side of the vestibule, and the vestibule proper or external passage leading to the vagina. During the breeding season, and especially after copulation, the vestibule may be partially everted, presenting a bright reddish surface outside the body. The internal genitalia include: the vagina, the cervix or muscular mouth of the uterus, the short cervical canal leading to the body of the uterus, whose cavity is partitioned by a septum. The upper end of each branch of the cavity, right and left, is attenuated and leads through the horn to the oviduct. Implantation and growth of the fetus take place in the uterine horn. The size of the horn is commonly expressed as dorsoventral diameter. The oviduct is coiled, and its minute open end is concealed in membranes which surround the ovary.

genital tract, male The external genitalia consist of the penial (or penile) opening in the skin of the belly, and the scrotum. The penis contains a bone, the baculum. From each testis the spermatozoa (or sperms) pass through a much-coiled epididymus to a deferent duct. The duct passes near, and receives the secretion of the right or left prostrate gland, then joins the deferent duct from the opposite testis and finally empties into the urethra at the base of the penis. The urethral opening is at the tip of the penis.

grading In the United States, at least, sealskins are graded twice, once in raw, salted condition and once in finished, dyed condition (Scheffer, 1962, p. 42-45). The raw, salted skin is graded for size (essentially length and width) on a set of five graduated wooden boards, the prototypes of which came to the United States from London before 1916. The five size-grades are: small medium, medium, large, extra large, and extra extra large. During raw grading, a particular blemish may be noted, for example: bite, bruise, scar, or flay. The finished, dyed pelt is graded for length on boards which are ruled in one dimension only. The same terms--small medium to extra extra large--as were applied to the raw, salted skins are again applied to the finished pelt. The finished pelt is also graded for quality, as follows:

Regular: fine, one (I) and two (II) (fine quality, unscarred pelts; grade II is less perfect in fur length, density, or luster than is I.

Scarred: A (same as fine and one, but scarred) and B (same as two, but scarred).

Three (III): damaged, or with poor quality fur; virtually unsalable.

group Male seals killed on the Pribilof Islands are assigned a group number from I to VI, depending on their body length in inches from snout to tip of tail: Group I, up to 36-3/4; Group II, 37 to 40-3/4; Group III, 41 to 45-3/4; Group IV, 46 to 51-3/4; Group V, 52 to 57-3/4; Group VI, 58 to 63-3/4. The group limits were estalbished in the years 1913-18 on the basis of known-age seals, ages 1 to 6 years. At that time, the six classes were referred to as age classes, not groups. Pribilof kill figures, by estimated age classes, were published for years 1918 to 1953, inclusive. Analysis by Groups I to VI was first published in Alaska Fishery and Fur-Seal Industries for 1954 (U.S. Fish and Wildlife Service, 1956, p. 64). Before the killing season of 1962, most field measurements on the Pribilof Islands were made to base of tail.

growth ridge See annulus.

hair "A filmentous outgrowth of the body, consisting of modified epidermic tissue" (Dorland, 1951). Somewhat arbitrarily, the fibers of the black birth-coat of the fur seal are called underhairs and overhairs (or guard hairs); those of the adult-type coat are called underfur hairs and guard hairs. This distinction is made because the underhairs of the pups are unlike those of the adult.

hauling ground An area, usually near a rookery, on which non-breeding animals congregate.

horizontal plane (horizontal section) As used in pelage studies, a plane parallel to the surface of the skin. Along the midback line or midbelly line, a horizontal plane is also a frontal plane.

immature A nulliparous female which, by reason of youth, is not capable of reproduction.

implantation The process of attachment of the blastocyst to the uterine wall. The mean date of implantation in the fur seal is quite certainly in early or mid-November, at embryonic age of 3 to 4 months.

implantation chamber A bulge or vesicle representing a widening of the lumen of the uterine horn where the blastocyst implants.

implantation scar Orange or brownish irregularities of the rugae which remain for 6-12 months on the mucosa of the uterine horn at the site of implantation, after the female has given birth or aborted.

impregnation The act of rendering pregnant. The male is said to impregnate the female, while the spermatozoon is said to fertilize the ovum.

juvenile Period of incomplete sexuality preceding the attainment of sexual maturity. Its lower limit is poorly defined.

kill The take, yield, or harvest.

leathering A tanning process in which, at least in part, a chamois tan is achieved by working seal oil into the skin.

length, basilar Basilar length of Hensel (BLH); on skull, from most posterior point at middle of lower lip of foramen magnum to transverse line touching posterior margins of sockets of median incisor teeth. See Hall (1946, fig. 483 on p. 679).

length, condylobasal (CBL); from transverse line touching most posterior points on occipital condyles, to transverse line touching most anterior points on premaxillary (= intermaxillary, = incisive) bones. See Taylor, Fujinaga, and Wilke (1955, fig. 50 on p. 62) or Scheffer and Wilke (1953, fig. 1 on p. 132).

length, crown-rump A standard length measured on an embryo before the cervical flexure has straightened. This occurs when the fur seal embryo has attained a weight of about 10 g.

length, field As used on the Pribilof Islands, length in inches from snout to tip of tail, measured by the "caliper man" on the killing field. It is a crude measurement and, on seals of killable size, averages 4-8 percent less than the standard length. This measurement was last taken in 1961 on St. Paul Island.

length, standard Along a straight line from snout to tip of tail, seal stretched on its back. On a fetus, particularly a preserved one, the crown-rump length may be used, with appropriate notation.

life table A mortality and survival table; a table showing survival to age X years of members of an original newborn population (the original population often set arbitrarily at 1,000).

maturity Sexual maturity in the female is attained when the first implantation takes place. She attains reproductive maturity 2 to 5 years later. Sexual maturity in the male is attained when he is able successfully to impregnate a female. Physical maturity is attainment of full physical size and strength.

median plane (median section) A plane which divides the body symmetrically into right and left halves (Miller, 1952, p. 2).

migration The act of passing seasonally from one region to another for feeding or breeding. Some pinnipeds (like the harbor seal) are regarded as non-migratory; some (like the northern fur seal) as migratory; some (like the California sea lion) as semimigratory.

missed pregnancy A female may miss pregnancy through failure to ovulate, through failure to be impregnated, or through loss of the blastocyst before implantation.

mortality rate Percent of a year class dying over a specified period. (Example: The mean annual mortality rate of pups dying on land in summer and fall is 15 percent.)

multiparous Pertaining to a female which has given birth or has been pregnant more than once. (If her last fetus aborted, she is multiparous (aborted).) The corresponding noun is multipara.

nulliparous Pertaining to a female which has never given birth (or aborted). The corresponding noun is nullipara.

ovulation The discharge of an unfertilized ovum from the Graafian follicle.

parous In its usual sense, parous means "having given birth." In fur seal research, it applies to seals which (a) have given birth, or (b) contain in the body a developing conceptus, post-implantation, or (c) both. A nulliparous female seal has never given birth and does not contain a post-implantation conceptus, though she may contain an undetected pre-implantation conceptus. A primiparous female seal (a) has given birth to one pup only, or (b) contains her first developing conceptus, post-implantation. A multiparous female seal (a) has given birth to two or more pups, or (b) has given birth to at least one pup and contains a developing conceptus, post-implantation. No distinction is made between a female which has aborted in late term and one which has successfully given birth; both are called parous.

parturient In the act of giving birth; in labor. See also post partum.

parturition Act of giving birth.

pelagic Of or pertaining to the open sea.

Petersen index The basic Petersen index is: $P = NH/R$; where P is the total population, N is the number of animals originally tagged, H is the total catch or kill, and R is the number of tagged individuals in the kill (Ricker, 1948, p. 39).

pink A condition on the flesh side of skins that are attacked by halophilic bacteria able to live in saturated brine. Controlled by the addition of boric acid and by cool storage.

placenta "The vascular structure by which the fetus is nourished in the uterus" (Webster, 1958). The seal placenta is deciduate, or deciduous (intimately attached to the uterine wall), and zonary (band-shaped). It communicates with the fetus through the umbilical cord.

pod A detachment of seals, such as a group driven from a hauling ground to the killing field.

post partum After parturition.

pregnancy rate Percent females pregnant. The term must be qualified by age. (Example: . . . pregnancy rate in females 4 years old or older, examined July to September.)

pregnant Having in the uterus a developing conceptus. In fur seal research both pregnant and recently post partum females are listed as pregnant in tables showing reproductive condition of females, thereby consolidating females that are pregnant and will normally give birth in a given year.

primiparous Pertaining to a female which has given birth (or aborted) only once. The corresponding noun is primipara.

puberty In females, the stage at which Graafian follicles develop and ovulation first occurs. In males, the beginning of spermatogenesis.

pup A seal from birth to 31 December of the year of birth. Three colloquial names are applied: black pup, newborn; black pup, molting; and silver pup.

pup crop All of the pups born within a calendar year.

recruitment The entrance or addition of a group of animals to a population. Examples: a. Recruitment of 4-year-old females to the stock of breeding females. b. Recruitment of newborn pups.)

regular See grading.

resorption (resorbence) Autolysis of a dead embryo within the uterine horn.

rookery Breeding ground and nursery where adult males and females form harems, where pasturition and impregnation usually take place, and where females nurse their young until autumn. (Example: Polovina Rookery.)

sagittal plane (sagittal section) A plane through any portion of the body, parallel to the median plane, dividing into right and left parts.

scarred See grading.

sealing crew On the Pribilof Islands, at least, seals are driven from the beach to the killing field by all members of the crew under the supervision of the foreman. A watchman guards a large group of seals. Pod cutters drive a small detachment of about 25 seals to the clubbers, who kill the seals. A sticker bleeds each seal and turns it on its belly. Sex is verified by a man without a special designation. A slitter cuts open the pelt preparatory to stripping. A barman pins the neck of the carcass to the ground with a heavy two-tined fork. Three strippers peel the pelt from the body with special tongs. Skin boys toss the pelts to one side and arrange them, flesh side down, in rows of 10 and blocks of 100. A carcass crew removes the carcasses from the field where the killing was done.

sealskin The pelt, whether fresh (green) or tanned, including the skin proper and the hairy covering; usually in a commercial sense. (Examples: Alaska sealskin, fur seal skin.)

sealstick Bone in the penis of male seals. The sealstick and other male genitalia exclusive of the testes are collected by local residents of the Pribilof Islands and sold for medicinal use. (Actual medicinal value is extremely doubtful.)

sex ratio Percentages of males and females. (Example: Sex ratio among tagged seals recovered as 3-year-olds, 51 percent males, 49 percent females.)

sleeper A seal sleeping at sea.

stagy A pelt is said to be "stagy" when short new guard hairs appear among the underfur fibers and the flesh side of the skin is bluish or grayish.

sterile Descriptive of a sexually mature animal of either sex which is incapable of producing young. See also barren.

stock Roughly equivalent to "herd" or "population." (Example: The Robben Island stock.)

three (III) See grading.

tooth ridge See annulus.

transverse plane (transverse section) "A plane which runs across the body at right angles to its long axis or across the long axis of a part" (Miller, 1952, p. 2).

umbilicus The scar left on the abdomen after the umbilical cord has been severed.

unhairing Removal of guard hair from a seal skin by scraping with a tool similar to a blubbering knife after the skin is heated.

uterus See genital tract, female. The uterus of the fur seal is a uterus bicornis and bilocularis; that is, a uterus with two horns and a partitioned cavity.

vibrissa An elaborate sensory bristle, growing throughout life and much larger than any body hair, situated on either side of the snout (mystacial vibrissa, mustache hair, whiskers) and above each eye (superciliary vibrissa). On each side of the head, the fur seal has 20 to 23 mystacial and 2 superciliary vibrissae.

virgin A colloquial term which has been used to describe a nulliparous female.

width, interorbital (IOW); least distance across top of skull between orbits, behind supraorbital processes, between parallels dropped from above the skull. See Hall (1946, fig. 482, p. 679), where called "interorbital constriction."

width, brain case (BCW); greatest horizontal width of skull between parietal bones, outside of one to outside of other. Depending on age and sex of seal, this may be the greatest width of the skull, or it may be exceeded by the mastoid width or zygomatic width.

width, mastoid (MW); greatest width between mastoid processes, outside of one to outside of the other. In younger seals, especially females, this may be difficult to measure. The "mastoid width" illustrated by Scheffer and Wilke (1953, fig. 1, p. 132) on a yearling skull is not, in fact, true mastoid width but brain case width.

width, zygomatic (ZW); greatest width, at right angles to axis of skull, from outside of one zygomatic arch to outside of the other. See Hall (1946, fig. 482, p. 679), where called "zygomatic breadth."

year class Group of seals born in the same year. See Ricker (1948, p. 18) for table on "decrease of successive year-classes . . ."

yearling A young seal in its second calendar year. (Example: A pup born in summer 1950 became a yearling on 1 January 1951 and ceased to be a yearling on 31 December 1951.) See also age.

REFERENCES

Abegglen, Carl E., and Alton Y. Roppel.
1959. Fertility in the northern fur seal, 1956-57. Journal of Wildlife Management, vol. 23, no. 1, p. 75-81.

Bartholomew, George A., Jr.
1953. Behavioral factors affecting social structure in the Alaska fur seal. Transactions of the 18th North American Wildlife Conference, 1953, p. 481-502.

Clemens, W. A., and G. V. Wilby.
1946. Fishes of the Pacific coast of Canada. Fisheries Research Board of Canada, Bulletin 68, 368 p.

Dorland, W. A. N.
1951. The American illustrated medical dictionary. 22d ed. W. B. Saunders Company, Philadelphia and London, 1,736 p. Reprinted 1952.

Enders, Robert K., Oliver P. Pearson, and Anita K. Pearson.
1946. Certain aspects of reproduction in the fur seal. Anatomical Record, vol. 94, no. 2, p. 213-227.

Galtsoff, Paul S.
1956. Glossary of marine conservation terms in English and Russian. U. S. Fish and Wildlife Service, Circular 43, 129 p.

Grinnell, Joseph, Joseph S. Dixon, and Jean M. Linsdale.
1937. Definitions. In Fur-bearing mammals of California. University of California Press, Berkeley, vol. 1, p. 42-44.

Hall, E. Raymond.
1946. Glossary. In Mammals of Nevada. University of California Press, Berkeley, p. 672-685, incl. 10 figs. of skulls.

Holt, S. J., J. A. Gulland, C. Taylor, and S. Kurita.
1959. A standard terminology and notation for fishery dynamics. Journal du Conseil, vol. 24, p. 239-242.

Kenyon, Karl W.
1950. Glossary. In Population estimates of the Alaska fur seal herd in 1949. U. S. Fish and Wildlife Service, Seattle, Washington, manuscript, 10 March, p. 60-62.

Kenyon, Karl W., Victor B. Scheffer, and Douglas G. Chapman.
1954. A population study of the Alaska fur-seal herd. U. S. Fish and Wildlife Service, Special Scientific Report--Wildlife 12, 77 p.

Lyon, Gretchen M.
1937. Pinnipeds and a sea otter from the Point Mugu shell mound of California. Publications of the University of California at Los Angeles in Biological Sciences, vol. 1, no. 8, p. 133-168.

Marshall, F. H. A.
1956, 1958. Physiology of reproduction. Edited by A. S. Parkes. Longmans, Green, and Co., London. 2 vols. (Vol. 1, 3d ed., 1956; vol. 2, 3d ed., 1952, reprinted 1958).

Miller, Malcolm E.
1952. Nomenclature. In Guide to the dissection of the dog. 3d ed., reprinted 1955. Ithaca, published by author, p. 1-6.

Montagu, M. F. Ashley.
1957. Definitions. In The reproductive development of the female . . . . The Julian Press, Inc., New York, p. 24, 28, and 32-33.

Pimlott, Douglas H., and H. W. Mossman.
1959. A macroscopic ovary-sectioning method. Journal of Wildlife Management, vol. 23, no. 2, p. 232-233.

Ricker, William E.
1948. Methods of estimating vital statistics of fish populations. Indiana University Publications, Science Series No. 15, 101 p.

1958a. Russian-English glossary of names of common fishes and other water organisms, together with certain terms used in fishery biology. Fisheries research Board of Canada, Nanaimo, 59 p. [Processed.]

1958b. Handbook of computations for biological statistics of fish populations. Fisheries Research Board of Canada, Bulletin 119, 300 p.

Roedel, Phil M.
1953. Common ocean fishes of the California coast. California Department of Fish and Game, Fish Bulletin No. 91, 184 p. 175 figs.

Scheffer, Victor B.
1962. Pelage and surface topography of the northern fur seal. U. S. Fish and Wildlife Service, North American Fauna 64, 206 p.

Scheffer, Victor B., and Ford Wilke.
1953. Relative growth in the northern fur seal. Growth, vol. 17, p. 129-145.

Scott, J. P.
1956. The analysis of social organization in animals. Ecology, vol. 37, no. 2, p. 213-221.

Taylor, F. H. C., M. Fujinaga, and Ford Wilke.
1955. Distribution and food habits of the fur seals of the North Pacific Ocean . . . . U. S. Fish and Wildlife Service, 86 pp.

Thorpe, W. H., and O. L. Zangwill (editors).
1961. Current problems in animal behaviour. Cambridge University Press, 424 p.

U. S. Fish and Wildlife Service.
1942. Alaska fishery and fur-seal industries. (Annual report; title varies; the Fish and Wildlife Service was established in 1940 and the report for this year was published in 1942.) Washington, Government Printing Office.

Webster, Noah.
1958. Webster's new international dictionary of the English language. 2d ed., unabridged, G. and C. Merriam Company, Springfield, Mass., 3, 194 p.

Wigutoff, Norman B.
1953. Common or local names of commercial fish and shellfish of Alaska. U. S. Fish and Wildlife Service, Fishery Leaflet 413, 4 p. [Processed.]

Wildlife Terminology, Committee on.
1957. Glossary of Wildlife terms. Journal of Wildlife Management, vol. 21, No. 3, p. 373-376.

Wilimovsky, Norman J.
1958. Provisional keys to the fishes of Alaska. U. S. Fish and Wildlife Service, Bureau of Commercial Fisheries Research Laboratory, Juneau, Alaska, 113 processed p. (not published).

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